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| APPLICATION NO.                                                                                          | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.     | CONFIRMATION NO. |
|----------------------------------------------------------------------------------------------------------|-------------|----------------------|-------------------------|------------------|
| 09/679,517                                                                                               | 10/06/2000  | Cheol Kim            | Q60624                  | 8859             |
| 7590                                                                                                     | 05/19/2004  | EXAMINER             |                         |                  |
| SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC<br>2100 Pennsylvania Avenue, N.W.<br>Washington, DC 20037-3213 |             |                      | BRINICH, STEPHEN M      |                  |
|                                                                                                          |             | ART UNIT             | PAPER NUMBER            |                  |
|                                                                                                          |             | 2624                 | DATE MAILED: 05/19/2004 |                  |
| 7                                                                                                        |             |                      |                         |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                  |
|------------------------------|-------------------------------|------------------|
| <b>Office Action Summary</b> | Application No.               | Applicant(s)     |
|                              | 09/679,517                    | KIM, CHEOL       |
|                              | Examiner<br>Stephen M Brinich | Art Unit<br>2624 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-3 and 9 is/are allowed.
- 6) Claim(s) 4 and 8 is/are rejected.
- 7) Claim(s) 5-7 is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                                |                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                           | Paper No(s)/Mail Date. ____.                                                |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date 6. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|                                                                                                                                | 6) <input type="checkbox"/> Other: ____.                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 4 & 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Mutoh et al.

Re claim 4, Mutoh et al. discloses (Figure 4; column 4, lines 34-55) dithering of a multi-bit (16 levels, or 4-bit) gray level signal and the printing of the dithered output in dots of differing sizes.

Re claim 8, Mutoh et al. discloses (Figure 7; column 5, line 61 - column 6, line 4) the use of pulse width modulation to generate the dots corresponding to a given gray level signal.

***Allowable Subject Matter***

3. Claims 1-3 & 9 are allowed.

4. Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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5. The following is a statement of reasons for the indication of allowable subject matter:

Re claims 1, 5, & 9 (and dependent claims 2-3 & 6-7), the art of record does not teach or suggest the recited combination of binary halftone thresholding based on a conversion of a gray component value to a printer resolution and multi-bit dithering to produce multiple dot sizes.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shu (each) discloses additional examples of multi-bit dithering and dot size regulation.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Brinich at 703-305-4390. The examiner can normally be reached on weekdays 7:00-4:30, alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2600 Customer Service center at 703-306-0377.

If attempts to contact the examiner and the Customer Service Center are unsuccessful, supervisor David Moore can be contacted at 703-308-7452.

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Faxes pertaining to this application should be directed to  
the Tech Center 2600 official fax number, which is 703-872-9306.

*Stephen Brinich*  
Stephen M Brinich  
Examiner  
Art Unit 2624

smb  
May 14, 2004



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EXAMINER

ART UNIT      PAPER

7

DATE MAILED:

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Commissioner for Patents